

An analysis of cases reported in the literature and an analysis of personally observed patients causes me to believe that the puerperium or pregnancy, labor and subsequent infection or toxæmia cannot be the sole cause of the psychoses seen at this period, with the one exception of true delirium accompanying infection, toxæmia or exhaustion from prolonged labor or hemorrhage.

That pregnancy, labor and the puerperal state are exciting causes of the other types of mental disturbance seems to be very likely, but it appears that there must be some basic constitutional predisposition to mental disturbance in these patients, with inadequate ability to withstand worry, anxiety and unhappy circumstances of life associated with the marital state or with illegitimate pregnancy.

In many personally observed patients this inadequacy of mind and prolonged anxiety and unhappiness preceded the period of confinement and predisposed the patient to acute mental disturbance so much as to require only a mild infection, toxæmia, or physical exhaustion to tip the balance. We must remember that anxiety of mind results in physiological disturbances affecting the entire endocrine system, the digestive functions and the circulatory apparatus, and that these physiological disturbances produce by a vicious circle a state of fear, and then the development of delusions is a short step. When elation and superficially jovial and exalted symptoms follow they can be interpreted as compensatory mental reactions in the nature of safety valves to the psyche, similar to those defense reactions which we see so frequently in hysteria, because they offer to the distressed mind an immediate way of getting out of a difficult situation.

Hysteria must be excluded before deciding on abortive measures in an apparently serious mental aspect during pregnancy. Careful observation should make the differentiation clear in a short time, as no case of hysteria can for very long simulate either manic-depressive psychosis or dementia præcox.

The Crown and the Cross—"There is a suffering which purifies, raises and strengthens and in which one can see the Crown as well as the Cross, but where there is no Crown visible it is terrible even to see suffering and must be intolerable to undergo it. My own belief is that if we could know all we should understand everything, but there is much in the world that cannot be explained without knowing what came before life and what is to come after it, and of that we know nothing, for faith is not knowledge. All that we can do is to take refuge in reverence and submission. 'God is in Heaven and thou upon earth, therefore let thy words be few' is one way of expressing the reverence, and: 'I was dumb and opened not my mouth for it was Thy doing,' is an expression of submission. They are hard things to say, but I don't know what else is to be said, and it is better to say them than to rail against what we cannot understand, or to attempt to belittle it, and put a gloss upon it. . . . The abyss is unfathomable to those who stand upon the brink, and I fear each of us who has to descend into it must find for himself or herself on what ledges a foot can be placed."—Lord Grey.

AMPUTATIONS IN THE REGION OF THE KNEE JOINT*

By HOWARD H. DIGNAN, M. D.

The whole subject of amputations viewed in the light of function needs reviewing. Most of the operative procedures described in the text-books are survivals from days when the single cut was made, and alcohol was the chief anaesthetic; they should have no place in contemporary literature.

Many of these operative procedures gained early popularity before the time of Lister, when artificial limbs were very crude appliances compared to those of today.

This early popularity has perpetuated many types of amputation, which in the light of progress, should have been discarded. After the late war a better standard was obtained, both in the type of amputation and the site of amputation, which resulted in greatly improved function.

In this paper, only amputations in the region of the knee-joint will be dealt with. If four inches of the tibia, from the tuberosity to the cut end of the tibia can be saved, a leg amputation should be done, and if a good artificial limb is provided a serviceable leg will result. If, however, less than four inches of tibia is available, the joint must be sacrificed, and the amputation giving the best functional result is the Gritti-Stokes, in which the femur is divided just above the condyles and the patella brought over the cut end of the femur. Knee-flex amputations and disarticulations of the knee are very difficult to fit with a limb, and are functionally deficient.

The essential points of a good thigh amputation, briefly enumerated, are:

1. *Shape.* The stump must be cone-shaped, so that the bucket will support part of the body weight on the sides.
2. *End-bearing.* This is not necessary, but it is a very decided advantage, and is easily obtainable by the Gritti-Stokes method.
3. *Scar.* The scar should be small, and must not come on the end-bearing surface. It must not be adherent to the bone or it is liable to tear from the skin tension. The scar of the Gritti-Stokes is posterior and protected from pressure by the tendons of the biceps femoris and the semi-tendinosus.
4. *Bone.* The end of the bone must be smooth and rounded. It must be free from exostoses and bone spicules. These can be prevented if the periosteum is cleanly cut, no strips being left, and all infection avoided.
5. *Nerves.* The nerves should be cut as high up as possible, the medullary sheaths ligated over the cut ends, so that nerve bulbs will be avoided and the nerve axones will not grow out into the surrounding scar tissue, muscles, periosteum, and skin to give distressing and painful symptoms.

The Gritti-Stokes operation is the only one that answers all these qualifications. Its superiority was strikingly demonstrated at the limb-fitting centers in England after the war. They had much better function than the others; many of them had better function than the below-knee amputa-

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tions. Some patients, after recovery, by this operation could walk twenty-five miles in a day with only a very slight limp. Other patients who had had knee-flex amputations, after seeing the results following the Gritti-Stokes operation, returned of their own accord and requested reoperation.

This operation was first described by Gritti in 1851. He cut through the condyles of the femur. Stokes greatly improved the operation by cutting through the femur just above the condyles. One wonders why a successful operation, described seventy years ago, has been replaced so long by many other types of less successful operation. Most textbooks of surgery describe some ten different amputations for this region; each with an impartiality which gives not the slightest idea of their ultimate comparative value in terms of function.

Following the description of Gritti's operation, it was widely used in Europe. It had a very high mortality at that time. Gritti's work antedated the period of aseptic technique. Consequently, the more bone cut into during an operation, the more serious the infection. This reason explains the statistics of D. Olivia in 1890, showing a mortality of 68 per cent during the years 1864 to 1866; a higher mortality than accrued with any other amputation in this region. Under these conditions the operation naturally fell into disfavor, and, although improved by Stokes, it never recovered from the odium of a high mortality acquired during its early days. After the advent of asepsis, the method was not put to the test until the last war, from which it emerges alone as the suitable amputation for this region. This operation should never be done where there is any chance of infection. It is better to save as much tissue as possible, and then, when safe, a secondary operation can be done. Tuffier states that in his war experience 90 per cent of amputations had to have a secondary operation.

Description of Gritti-Stokes Operation—A tourniquet is ordinarily used. An oblique circular incision is made anteriorly over the tuberosity of the tibia, and posteriorly just above the condyles of the femur. The patellar ligament is cut, the capsule divided, and the joint opened. The anterior flap is dissected and freed to a point above the condyles. The patella is everted and sawed through, removing the dorsal surface. The soft tissues are retracted and the femur sawed through just above the condyles. The periosteum should be cut away cleanly with the scalpel, as jagged edges left by the saw may develop exostoses and spicules. The ligamentum patella is stitched to the periosteum on the dorsal surface of the femur with chromic gut. Ivory pegs, wire, and other unabsorbable material should be avoided. They prevent firm union and prevent end-bearing. The tendons of the biceps femoris and semi-tendinosus should be sutured to the ligamentum patella in their natural position, maintaining a natural sulcus, which will protect from pressure the scar and the nerve ends. The posterior tibial and common peroneal nerves should be excised two inches higher up. The medullary sheath should be cuffed, a wedge-shaped incision made in the end of the nerve, the sheath pulled

down over the cut end of the nerve and ligated with chromic gut. This method, I believe, gives the smallest percentage of painful nerve bulbs, and prevents the wandering of the axones from the cut end. Hemostasis is taken care of and the stump attended to in the usual manner.

Post-Operative Treatment—A new stump will not be ready for a permanent artificial limb for from two to five months. It must first be reduced, all fat removed, and the muscular atrophy, incident to amputation, obtained before the permanent limb is made, otherwise three or four limbs will be necessary before the stump has reached its more permanent size.

Tight-fitting elastic pressure-bandages should be applied to the entire stump as soon as it is healed. Massage is begun at the same time, to aid in stump reduction and to maintain a freely movable scar. Passive motion of the hip-joint is started to avoid any limitation of motion in this joint. Shortly after healing has taken place, a pylon should be provided. The plaster pylons are very easily made, and generally two or three are necessary before the stump is reduced to nearly permanent size.

Amputation cases should never be allowed to develop a crutch habit. Many patients, after becoming skilled in the use of crutches, will not take the trouble to toughen their skin sufficiently to use an artificial limb. A week or two only with crutches should be allowed during the time they are learning to walk on a pylon. It takes time and study to learn to wear an artificial limb efficiently, but the results more than justify it.

Some form of pylon is indispensable in the proper after-treatment of amputations. The mode of making the plaster pylon is as follows: The stump is tightly fitted with felt, burlap, or woollen cloth and sewed. An extra two inches is left at the top and bottom. A layer of plaster of Paris bandage is applied, and a smooth, snug bucket molded to the stump. A wooden frame fitted for proper length is now incorporated in the plaster, several turns of plaster being taken over the upper ends of the side-stays to prevent their sliding through. The upper edge of the plaster-bucket is widened and smoothed out, so that it fits the tuber-ischii to give a ring-bearing surface. Two large tape-strands are fixed in the plaster, to be later buckled over the opposite shoulder for support. There are three points of weight bearing: (1) The tuber-ischii on the upper rim. (2) The sides by reason of the cone shape. (3) The end of the stump. If the stump-end is not entirely healed, the bottom of the bucket is left open, and the other points bear the entire weight.

The wearing of pylons is the most important post-operative procedure in the treatment of amputations, designed for the use of artificial legs. To summarize the results obtained by their use, there is: (1) The prevention of the various flexion deformities, hip-joint ankyloses and muscle shortening by giving the patient early practical use of the stump. (2) The toughening of the skin under the tuber-ischii, along the sides of the thigh and on the end of the stump. This must be done be-

fore an artificial limb can be worn comfortably. (3) The reduction of fat and the atrophy of muscle. Pylons reduce stumps more quickly than any other means. (4) The prevention of prolonged use of crutches. Many men seek the line of least resistance and, having acquired the crutch habit, will use their crutches all week, and their artificial limb on Sunday, because they have not acquired the same skill in the use of the limb as they were forced by circumstances to acquire with crutches.

Practically all flexion deformities are developed from the use of crutches. The stump is always held forward in the same position, and in a few weeks the iliopsoas and pectineus muscles contract and shorten, and if untreated a fibrous ankylosis supervenes. Only continued forcible stretching will correct this condition. A limb cannot be worn until it is overcome.

It is hoped that this paper may be the means of assisting some of these patients to obtain less uncomfortable, as well as more serviceable, artificial limbs.

California, Too—In speaking of "Suits Against County Physicians," in the January, 1923, issue of the Long Island Medical Journal, the editor says:

"One of the trying things about the practice of medicine in rural Long Island is the liability of law-suits. At least five such suits were brought against Suffolk County doctors in 1922. Broken bones are especially the excuse for starting suits. The patients themselves are usually satisfied, but they are persuaded by alleged friends that they have been badly treated. To illustrate. A young man with a broken wrist was treated carefully and conscientiously by a physician who possessed both skill and a conscience. After the recovery the wrist was somewhat stiff and tender, as are all broken wrists. A public spirited minister of the Gospel, who had been prominent in the boy scout movement, interested himself in the patient and took him to one of the largest and most scientific hospitals in New York City. There the alleged surgeon told the patient that the result was deplorable, and that the country doctor did not know how to treat broken wrists. On this advice suit was brought, but the plaintiff failed to appear at the trial.

"Every thoughtful physician wishes that he never would see a broken bone; but since he treats fractures for the sake of humanity, his only safe course is to call in at least two consultants and give the case double the attention that it really requires. Consultation in these cases regardless of a fee is a duty which every doctor owes to others, for it is in the nature of an insurance against malpractice suits.

"As for the young, thoughtless internes and associates attending physicians at big hospitals, who seek to magnify their own importance by decrying the skill of rural physicians; they need to feel the discipline of the governing boards and of the county societies. The difficulty, of course, is that they commit nothing to writing, and, therefore, can deny saying anything unethical. Two Utopian rules which should be required of every hospital are: (1) No opinion derogatory to the previous physicians shall be expressed to the patient. (2) A written opinion or diagnosis shall be sent to the previous physician.

"These rules are observed when a physician sends his cases to the hospital. They are equally applicable to all other cases."

THE GENESIS AND TREATMENT OF INSOMNIA *

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Insomnia is a popular and much-abused term, used to describe any degree of sleeplessness however mild. The man who has dined too well or the man who is planning a new house frequently describes one or two restless nights as "suffering from insomnia." Such temporary and passing disturbances should not be dignified by the name insomnia, and will not be considered further than to class them as the ordinary average breaks in the sleep habit which fall to the lot of us all. We will confine our present discussion to persistent, long-continued sleeplessness. Such a bad habit when thoroughly engrafted on an individual often lasts months or years, and interferes markedly with its possessor's health and happiness.

Insomnia is, of course, a symptom, not a disease, and is of very little diagnostic importance. Indicative of physical or mental unrest, it acts as confirmatory evidence of physical or mental irritation, but its presence is no definite proof of the existence of any one disease. From our patients' standpoint, and therefore from the therapeutic standpoint, it is of considerable importance.

The text-book etiology of insomnia is as varied as is usually the case in symptoms or diseases where the specific cause is not known. It is found in association with organic and functional disorders, more frequently in the latter type of case.

In this paper I shall discuss the problem on the hypothesis that true insomnia is a nervous disorder, dependent for its existence on psychic disturbance, on a disturbance in consciousness. Such a disturbance in consciousness may be induced by physical or mental causes or, as is usually the case, by a mixture of both. Insomnia, in other words, is not just sleeplessness, but sleeplessness to which anxiety and fear, in regard to its effects as well as frenzied efforts to eradicate it, are added. Furthermore this condition is found associated, in the vast majority of patients, with an underlying condition of mental unrest or nervous disturbance. The seat of insomnia is above the collar, not below. It is a physiological problem, primarily with secondary physical elements, and can only be successfully treated from the re-educational standpoint.

Insomnia is partially, at least, a nervous or mental problem. It must of necessity be so if we remember our physiology, which tells us that the nervous system is involved in any reaction of the organism. The question to be determined from the standpoint of therapeutics is the relative importance of the mental and physical factors in the genesis of this symptom.

Our knowledge of the physiology of the production of sleep is still in the theoretical stage; the exact mechanism remains unsolved, though three theories, the toxic, the cerebral anemia, and the neuron retraction theory, each have their adherents. The scope of this paper does not permit, even were it profitable, a discussion of these the-

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